

CLAIMS

What is claimed is:

1. A sleeve assembly for receiving and protecting elongated items within a duct, said sleeve assembly comprising:

a plurality of separate and independent sleeves positioned lengthwise adjacent to one another, each said sleeve comprising:

a sidewall surrounding and defining a central space, said sidewall being formed from a plurality of warp filamentary members interwoven with a plurality of weft filamentary members, said weft filamentary members being resiliently biased radially outwardly so as to resiliently maintain said sleeve in an open configuration;

a pull cord positioned within said central space and extending lengthwise of said sleeve; and

said assembly further including means for simultaneously drawing said plurality of sleeves through said duct.

2. A sleeve assembly according to Claim 1, further comprising an outer jacket surrounding said plurality of sleeves and extending lengthwise there along, said jacket having an inwardly facing surface engaging said sidewalls of said sleeves, said inwardly facing surface comprising said means for simultaneously drawing said plurality of sleeves through said duct.

3. A sleeve assembly according to Claim 2, wherein said jacket comprises a plurality of interlaced filamentary members.

4. A sleeve assembly according to Claim 3, wherein said filamentary members comprising said jacket are interlaced by braiding, said jacket exerting an inwardly compressive force on said plurality of sleeves when placed under tension.

5. A sleeve assembly according to Claim 3, wherein said filamentary members comprising said jacket are interlaced by weaving, said jacket being sized so as to forcibly engage said resiliently biased sidewalls of said sleeves substantially along their lengths, said jacket having a cross-sectional profile substantially conforming to said sidewalls.

6. A sleeve assembly according to Claim 1, wherein said warp and said weft filamentary members consist essentially of polyester monofilaments.

7. A sleeve assembly according to Claim 6, wherein said warp monofilaments have a diameter of about 0.35 mm.

8. A sleeve assembly according to Claim 7, wherein said weft monofilaments have a diameter of about 0.25 mm.

9. A sleeve assembly according to Claim 8, wherein at least one of said sidewalls has a weave density of 25 to 35 dents per inch by 25 to 35 picks per inch.

10. A sleeve assembly according to Claim 1, wherein said filamentary members are woven in a pattern selected from the group consisting of satin, sateen and twill weaves.

11. A sleeve assembly according to Claim 1, further comprising a loop extending transversely to said plurality of sleeves, said loop being positioned at one end of said sleeves and penetrating said sidewalls of each of sleeves, said loop comprising said means for simultaneously drawing said plurality of sleeves through said duct.

12. A sleeve assembly according to Claim 11, wherein said loop comprises a rigid ring.

13. A sleeve assembly according to Claim 11, wherein said loop comprises a flexible wire.

14. A sleeve assembly according to Claim 1, wherein one of said warp and said weft filamentary members comprise polyester.

15. A sleeve assembly according to Claim 14, wherein one of said warp and said weft filamentary members further comprise nylon.

16. A sleeve assembly according to Claim 14, wherein one of said warp and said weft filamentary members further comprise polypropylene.

17. A sleeve assembly according to Claim 1, wherein said warp and weft filamentary members comprise aramid filaments selected from the group consisting of

nylon, polyphenylene sulfide, polyvinylidene fluoride, and copolymers of ethylene and chlorotrifluoroethylene.

18. A sleeve assembly according to Claim 1, wherein said warp and weft filamentary members have substantially the same color as one another, an additional filamentary member being interwoven along with said warp filamentary members substantially lengthwise along said sleeve and having a color contrasting with said warp and weft filamentary members.

19. A sleeve assembly according to Claim 1, further comprising an electrically conducting layer substantially coextensive with at least one of said sleeves.

20. A sleeve assembly according to Claim 19, wherein said electrically conducting layer comprises aluminum foil.

21. A sleeve assembly according to Claim 19, wherein said electrically conducting layer comprises a plurality of interlaced wires.

22. A sleeve assembly according to Claim 19, wherein said electrically conducting layer is positioned between said sidewall and said central space.

23. A sleeve assembly according to Claim 19, wherein said electrically conducting layer comprises electrically conducting filaments interwoven with said warp and said weft filamentary members.

24. A sleeve assembly according to Claim 1, further including an electrically conducting wire interlaced with said filamentary members lengthwise along at least one of said sleeves.

25. An elongated sleeve structure according to Claim 1, further comprising a flexible polymer coating positioned on at least one of said sleeves, said coating providing a substantially fluid-tight seal of said sleeve.

26. An elongated sleeve structure according to Claim 1, further comprising a flexible coating comprising zinc compounds, said coating being positioned on at least one of said sleeves and providing a defense against decay thereof.

27. A sleeve assembly for receiving and protecting elongated items within a duct, said sleeve assembly comprising:

a plurality of separate and independent sleeves positioned lengthwise adjacent to one another, each said sleeve comprising:

a sidewall surrounding and defining a central space, said sidewall being formed from a plurality of warp filamentary members interwoven with a plurality of weft filamentary members, opposing portions of said sidewall being resiliently biased into facing relation with one another to assume a substantially flat configuration, said opposing sidewall portions being separable into spaced apart relation to receive said elongated items within said central space;

a pull cord positioned within said central space and extending lengthwise along said sleeve; and

said assembly further including an outer jacket surrounding said plurality of sleeves and extending lengthwise there along, said jacket having an inwardly facing surface engaging said sidewalls of said sleeves for simultaneously drawing said plurality of sleeves through said duct.

28. A sleeve assembly according to Claim 27, wherein said jacket comprises a plurality of interlaced filamentary members.

29. A sleeve assembly according to Claim 28, wherein said filamentary members comprising said jacket are interlaced by braiding, said jacket exerting an inwardly compressive force on said plurality of sleeves when placed under tension and maintaining said plurality of sleeves in said position lengthwise adjacent to one another when said sleeves are drawn through said duct.

30. A sleeve assembly according to Claim 27, wherein said warp and said weft filamentary members consist essentially of polyester monofilaments.

31. A sleeve assembly according to Claim 30, wherein said filamentary members are woven in a pattern selected from the group consisting of satin, sateen and twill weaves.